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Subject:

Report on Fiscal Year 2017 Adequacy of Rates and Charges, Deposits to the  
Renewal and Replacement Fund, Expenditure of 2013A Bond Proceeds, 2015  
Bond Refunding, and Commercial Paper

WATER

Date:  
August 31, 2016

Contact:  
Leah K. Richter, P.E.

Dear Mr. Sola:

Phone:

[REDACTED]

Email:

[REDACTED]

Our ref:  
04613056.0002

Arcadis U.S., Inc. (Arcadis) in association with Planning and Economics Group, Inc., (jointly referred to as the "Consultant") performing the duties of the Bond Consultant as defined in the Miami-Dade County Ordinance 93-134 as amended (Master Bond Ordinance), is pleased to present the attached report which summarizes our analysis of the Miami-Dade Water and Sewer Department's (Department) projected expenses and revenues to address the adequacy of the rates and charges that have been included in the Department's Fiscal Year (FY) 2017 Proposed Budget. In addition, we have reviewed the Department's renewal and replacement (R&R) program, and the adequacy of the amount budgeted to be credited to the Department's Renewal and Replacement Fund for FY 2017. As part of the analysis, the balance in the Renewal and Replacement Fund and the use of bond proceeds and commercial paper were addressed. These analyses were conducted to meet the requirements of Section 607 of the Master Bond Ordinance.

The conclusions presented in the attached report are based on the Department's Proposed Budget incorporated in the Mayor's Proposed Budget and Multi-Year Capital Plan (MYCP), as of August 30, 2016.

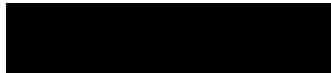
The opportunity to provide these services to the Department is appreciated. Please do not hesitate to contact us should you have any questions or comments regarding the analysis and conclusions presented in our report.

Sincerely,

Arcadis U.S., Inc.

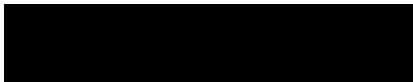


Vice President



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#### **Attachments**

- 1 Report on Fiscal Year 2017 Adequacy of Rates and Charges, Deposits to the Renewal and Replacement Fund, Expenditure of 2013A Bond Proceeds, 2015 Bond Refunding, and Commercial Paper

Miami-Dade Water and Sewer Department

**FISCAL YEAR 2017 ADEQUACY OF  
RATES AND CHARGES, DEPOSITS  
TO THE RENEWAL AND  
REPLACEMENT FUND,  
EXPENDITURE OF 2013A BOND  
PROCEEDS, 2015 BOND  
REFUNDING, AND  
COMMERCIAL PAPER**

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August 31, 2016 – FINAL

FISCAL YEAR 2017 ADEQUACY OF RATES AND CHARGES, DEPOSITS TO THE RENEWAL AND REPLACEMENT FUND, EXPENDITURE OF 2013A BOND PROCEEDS, AND 2015 BOND REFUNDING AND COMMERCIAL PAPER



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John R. Kersten  
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Associate Vice President



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Isabel Gonzales-Jettinghoff  
Planning and Economics Group, Inc.  
President

**FISCAL YEAR 2017  
ADEQUACY OF RATES  
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PROCEEDS, 2015  
BOND REFUNDING,  
AND COMMERCIAL  
PAPER**

Prepared for:

Lester Sola

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FISCAL YEAR 2017 ADEQUACY OF RATES AND CHARGES, DEPOSITS TO THE RENEWAL AND REPLACEMENT FUND, EXPENDITURE OF 2013A BOND PROCEEDS, AND 2015 BOND REFUNDING AND COMMERCIAL PAPER

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FISCAL YEAR 2017 ADEQUACY OF RATES AND CHARGES, DEPOSITS TO THE RENEWAL AND REPLACEMENT FUND, EXPENDITURE OF 2013A BOND PROCEEDS, AND 2015 BOND REFUNDING AND COMMERCIAL PAPER

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FISCAL YEAR 2017 ADEQUACY OF RATES AND CHARGES, DEPOSITS TO THE RENEWAL AND REPLACEMENT FUND, EXPENDITURE OF 2013A BOND PROCEEDS, AND 2015 BOND REFUNDING AND COMMERCIAL PAPER

## ACRONYMS AND ABBREVIATIONS

CPI	Consumer Price Index
EPA	Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
FY	Fiscal Year
MYCP	Multi-Year Capital Plan
O&M	Operations and Maintenance
R&R	Renewal and Replacement
SWTR	Surface Water Treatment Rule
SDWA	Safe Drinking Water Act

# FISCAL YEAR 2017 ADEQUACY OF RATES AND CHARGES, DEPOSITS TO THE RENEWAL AND REPLACEMENT FUND, EXPENDITURE OF 2013A BOND PROCEEDS, AND 2015 BOND REFUNDING AND COMMERCIAL PAPER

## BACKGROUND

Arcadis U.S., Inc. (Arcadis) in association with Planning and Economics Group, Inc., (jointly referred to as the “Consultant”) performing the duties of the Bond Consultant as defined in the Miami-Dade County Ordinance 93-134 as amended (Master Bond Ordinance), has conducted an analysis of the Miami-Dade Water and Sewer Department’s (Department) projected expenses and revenues to address the adequacy of the rates and charges that have been included in the Department’s Fiscal Year (FY) 2017 Proposed Budget. In addition, we have reviewed the Department’s renewal and replacement (R&R) program, and the adequacy of the amount budgeted to be credited to the Department’s Renewal and Replacement Fund for FY 2017. As part of the analysis, the balance in the Renewal and Replacement Fund and the use of bond and commercial paper proceeds were addressed. These analyses were conducted to meet the requirements of Section 607 of the Master Bond Ordinance, which requires the Department to engage a Consultant:

“...to prepare and file with the County on or before the 1st day of September in each year a report setting forth their recommendations as to any necessary or advisable revisions of rates and charges and such other advice and recommendations as they may deem desirable. The Consultant shall include in such report its recommendations as to the amount that should be deposited monthly during the next Fiscal Year to the credit of the Renewal and Replacement Fund for the purposes set forth in Section 508 of this Ordinance.”

The conclusions presented below are based on the Department’s Proposed Budget incorporated in the Mayor’s Proposed Budget and Multi-Year Capital Plan (MYCP), as of August 30, 2016. It is important to note that the Proposed Budget may undergo changes prior to its final approval by the Board of County Commissioners, which is scheduled to occur in September 2016. An important aspect of the current Proposed Budget is that the Department’s retail customer water and wastewater rates will be increased by 8.0 percent in FY 2017 from the FY 2016 levels. Increasing the retail customer water and wastewater rates in FY 2017 will enable the Department to meet the requirements in the Master Bond Ordinance, Section 208, for funding all budgeted operating and non-operating expenses and meeting debt service coverage requirements. It is important to note that this rate increase is required by the Department to meet the Additional Bonds Test outlined in the Master Ordinance to fund the Capital Improvement Program included in the Consent Decree.

Wholesale customer rates are set in the Wholesale Rate Development process and are based on the estimated cost of providing the said services. The Department’s Proposed Budget includes an increase in wholesale wastewater customer rates of 5.7 percent and wholesale water customer rates will remain unchanged. Wholesale customer charges are also adjusted to take into account any difference between the budgeted and actual costs two years earlier, FY 2015. This adjustment is known as the “true-up,” a practice commonly applied by large utilities that serve both retail and wholesale customers.

From FY 2007 to FY 2010, the County followed the policy of raising rates in proportion to inflation, based on the federal government annual price index for maintaining water and sewer facilities (United States Department of Labor, Bureau of Labor Statistics, CPI, U.S. City Average, Water and Sewerage Maintenance). The Department did not implement revenue increases in FY 2012 and FY 2013 partly because the Department reduced costs through reductions in salaries and benefits as well as staffing

## FISCAL YEAR 2017 ADEQUACY OF RATES AND CHARGES, DEPOSITS TO THE RENEWAL AND REPLACEMENT FUND, EXPENDITURE OF 2013A BOND PROCEEDS, AND 2015 BOND REFUNDING AND COMMERCIAL PAPER

levels. In FY 2014, the Department implemented an 8.0 percent retail water and sewer rate increase, which was greater than the 4.1 percent Maintenance Index for the period. The Department implemented a 6.0 percent retail water and sewer rate increase in FY 2015 which is slightly above the 5.6 percent Maintenance Index for the period May 2014 through May 2015. The Department proposed a 6.0 percent increase in its FY 2016 Budget that was approved, and it is including an 8.0 percent increase in its FY 2017 Proposed Budget.

While the Department has taken the necessary actions to adequately fund operating and capital requirements, specific consideration must be given to the items listed below:

1. The recognition of the need to rehabilitate and/or replace much of the Department's aging infrastructure;
2. The existing consent decree (Case: No. 1:12-cv-24400-FAM) involving United States Environmental Protection Agency (EPA) and the Florida Department of Environmental Protection (FDEP) that will require an investment of about \$2.3 billion over the life of the consent decree along with additional procedural requirements to remain in compliance; and
3. The recognition that meeting the State of Florida's statute requiring all wastewater utilities in southeast Florida utilizing ocean outfalls for disposal of treated wastewater to reduce nutrient discharges by 2018, cease using the outfalls by 2025, and reuse 60 percent of the wastewater flows by 2025 would require major additional investment.

The Proposed Budget for FY 2017 includes a proposed rate increase of 8.0 percent, which is greater than the Maintenance Index of 4.7% (20 year average), and will be applied to the water and wastewater systems. As mentioned earlier, this is a rate increase is needed if the Department is to successfully implement its Multi-Year Capital Improvement Program and comply with its regulatory requirements.

## 1 SUMMARY OF ANALYSIS

The key findings from the analysis are the following:

- The budgeted rates and fees included in the Proposed Budget for FY 2017 will allow the Department to cover operating and maintenance costs and meet the debt service coverage requirements in the Bond Ordinance. The required and estimated debt service coverage for Senior Lien Debt, Subordinate Lien Debt, and the State Revolving Fund Loan are summarized in Table 1.

**Table 1. Summary of Required and Estimated Debt Service Coverage**

Long Term Debt	Required Debt Service Coverage	Projected FY 2016	Proposed Budget FY 2017	
			Budgeted Revenues	100%
Senior Lien Debt	1.25	1.61	1.58	1.69
Subordinate Lien Debt	1.00	5.40	5.59	6.65
State Revolving Fund Loan Debt	1.15	3.32	3.35	4.41

Note: The debt service coverage ratio shown under the "Budgeted Revenues" column reflects the State of Florida requirement that the County budget on the basis of receiving less than the full revenues projected. The ratios shown under the "100%" column are based on the Department's receiving 100 percent of the revenues projected for FY 2017. The debt service coverage results for "Proposed Budget FY 2017" are presented assuming no withdrawal from the Department's Rate Stabilization Fund.

- Under the Proposed Budget, the debt service reserve required by Bond Ordinance and the reserve for meeting the Department's budgeted 60-day Operating Expenses will be adequate in FY 2017. The FY 2017 Proposed Budget results in a slight increase in the Department's general reserve to about \$41 million, from the projected FY 2016 level of \$39.8 million.
- The Department's FY 2017 Proposed Budget includes an 8.0 percent increase in retail water and wastewater system revenues over the projected FY 2016 level that is needed for the escalation of cost that is included in the Proposed Budget, as well as to strengthen bonding capacity. It is important to note that the debt service coverage projections used in this analysis to estimate the adequacy of the Department's rates and charges are based on the Department receiving 100 percent of projected revenues rather than the reduced level used in the Department's budgeting process as required by State of Florida law. The Department's Master Bond Ordinance does not require the use of a reduced revenue forecast in this calculation, and historically, the Department has realized receipts in amounts close to the forecasted revenues projected during the budgeting process.

FISCAL YEAR 2017 ADEQUACY OF RATES AND CHARGES, DEPOSITS TO THE RENEWAL AND REPLACEMENT FUND, EXPENDITURE OF 2013A BOND PROCEEDS, AND 2015 BOND REFUNDING AND COMMERCIAL PAPER

- The budgeted renewal and replacement funds from operating revenues in FY 2017, which are deposited into a dedicated fund, are consistent with the projected FY 2016 and historical levels of \$80.0 million. The nature of this deposit reflects the continued need and effort of the Department to improve existing infrastructure, especially transmission lines.
- The Department's budget calls for funding \$107.1 million in renewal and replacement projects from the renewal and replacement fund. This amount is budgeted to be funded with \$80.0 million from system revenue and \$27.1 million from existing R&R funds. At the end of FY 2017, the ending renewal and replacement balance is anticipated to be reduced to \$25.9 million from \$53.0 million in FY 2016.
- The Proposed Budget includes approximately \$507.1 million in R&R fund spending between FY 2017 and FY 2022. Given the R&R needs identified in the Water and Sewer Infrastructure Report, as well as the June 6, 2013 Consent Decree (Case: No. 1:12-cv-24400-FAM), we recommend the Department achieves the level of R&R spending proposed in the budget.
- As a part of the Consent Decree referenced herein, the Miami-Dade County Commissioners passed Resolution R-282-14 that restricts the use of funds, collected from sewer rate revenues, for any purpose not related to the management, operations, and maintenance of the sewer system. In the event that the County wishes to use these funds, as referenced herein, for any purpose outside of the categories referenced, the County must provide notice to the Federal Courts and Enforcing Agencies that respectively preside and are included in the Consent Decree. As understood by the Consultant, no sewer rate revenue funds generated in FY 2017 will be utilized for any other purposes than the management, operations, and maintenance of the sewer system.

## 2 PROJECT APPROACH

The project approach used in assessing the adequacy of the Department's projected revenues consisted of compiling and analyzing a variety of system operation, maintenance, capital improvement, and financial information. The Consultant reviewed pertinent documents prepared by the Department, interviewed senior Department personnel, and reviewed the Department's financial reports and the FY 2017 Proposed Budget documents. The analysis included the evaluation of the procedures and assumptions used by the Department in the development of the FY 2017 Proposed Budget and the Department's financial performance during FY 2016. The Consultant relied on its team's knowledge gained from performing previous work, preparing documents for the Department, and on information and data provided by the Department. The analysis was conducted herein is based on generally accepted engineering and economic principles. Capitalized terms used herein maintain the same meaning as defined in the Master Bond Ordinance.

### 3 FISCAL YEAR 2016 FINANCIAL PROJECTIONS

This section compares the Department's current financial projections for FY 2016 with the Department's Adopted Budget for FY 2016. The comparison of FY 2016 projections to FY 2016 budgeted figures is provided to give a perspective and identify factors that have affected the Department's financial position.

The Department's projected operating revenues for FY 2016 is forecasted to be \$652.0 million at 100 percent recovery as compared to the adopted FY 2016 budgeted operating revenues of \$637.5 million. Projected water and wastewater operating expenses are forecasted to be \$401.5 million in FY 2016 as compared to the budgeted water and wastewater operating expenses of \$410.8 million in FY 2016.

For FY 2016, deposits from operating revenues to the Renewal and Replacement Fund are projected to be approximately \$80 million, the same as the budgeted amount.

The Department is projecting an increase in its general reserve from \$19.7 million that was budgeted in FY 2016 to \$39.8 million projected for FY2016. The current revenue projections at 100 percent revenue recovery, indicates that the reserve increase to \$39.8 million is consistent with historical levels, to note, the difference in the forecasted balance at the end of FY 2016 is due to the Department's practice of budgeting revenues at less than 100 percent. In FY 2016 and FY 2017, the Department anticipates \$5 million payments per year from the County's General Reserve for a FY 2012 \$25.0 million loan. At the end of FY 2017, a balance of \$5.0 million will remain as a payable. The maintenance of general reserve funds is critically important to the Department for addressing unforeseen revenue shortfalls and/or unanticipated increase in operating expenses.

For FY 2016, the Department's debt service coverage ratio for senior debt, based on 100 percent recovery of operating revenue, is projected to be 1.61.

On May 20, 2015, the Department issued \$481.2 million in Water and Sewer System Revenue Refunding Bonds, Series 2015, partially refunding Series 2007 Bonds and Series 2008C Bonds. As a result, the Department's debt service payment in FY 2017 is forecasted to generate annual savings of \$2.3 million in debt service payments during FY 2016 and FY 2017.

The Department entered into a commercial paper agreement on May 26, 2016. The goal of the commercial paper is to provide the Department interim readily-accessible financing for capital projects. Under the agreement the aggregate principal amount cannot exceed \$400.0 million and the principal amount on any single issuance cannot exceed \$200.0 million. In FY 2016 the Department projected it will issue \$100 million in commercial paper notes. The Department may negotiate rollover terms and draws of the commercial paper as needed. At the time of the instrument rollover and/or draw, interest rate and terms are agreed to based on market conditions.

The County has periodically entered into interest rate swaps and other financial instruments to hedge risk or to manage the interest costs associated with existing debt service obligations. The County entered into interest rate swaps with respect to the Series 1999A Bonds and the Series 2007 Bonds. The Series 1999A Bonds were refunded with the Series 2013B Bonds, so the 1999A swap now relates to the Series 2013B Bonds. Both swaps are now held by the Bank of New York Mellon pursuant to an International Swaps and Derivatives Association, Inc. (ISDA) Master Agreement, dated October 2, 2009. The County received \$10.2 million from the swap counterparties of the Series 1999A and the Series 2007 Bonds during FY 2016, and is projecting to receive \$9.5 million in FY 2017.

## 4 ADEQUACY OF PROPOSED REVENUES AND ASSOCIATED RATES AND CHARGES BUDGETED FOR FY 2017

As a condition of issuing revenue bonds, Miami-Dade County adopted the Master Bond Ordinance, which stipulates the operating and financial conditions that the Department must meet both for the issuance of bonds as well as on an ongoing basis. One of the financial covenants that the Department must meet is to set rates and charges sufficient to allow the Department to meet several debt service coverage standards. This section provides an assessment of the adequacy of the rates and charges included in the Department's Proposed Budget to generate the revenues needed to comply with the rate covenant in the Department's Master Bond Ordinance.

The Rate Covenant, stated in Section 602 of the Master Bond Ordinance requires the County to:

"...fix, charge and collect rates and charges for the use of the services and facilities furnished by the Water and Sewer Utility and that from time to time, and as often as it shall be necessary, it will adjust such rates and charges by increasing or decreasing the same or any selected categories of rates and charges, so as to provide Net Operating Revenues in each Fiscal Year... equal to (a) one hundred ten percent (110%) [changed to 125% in FY 2013] of the Principal and Interest Requirements on the Bonds for such Fiscal Year plus (b) one hundred percent (100%) of the required deposits into the Reserve Account (less any portion thereof to be deposited from proceeds of Bonds) together with any Reserve Account Credit Facility Costs payable in such Fiscal Year. In addition to satisfying the debt service coverage requirements set forth above, the Adjusted Net Operating Revenues remaining after deduction of the Maximum Principal and Interest Requirements on all Bonds shall be at least equal to one hundred percent (100%) of all debt service and reserve requirements on Subordinate Obligations;"

Each year the Department conducts a budget development process that includes projection of operation and maintenance expenses based on each division's anticipated expenditures, which is based on each Department providing an adequate level of service, maintaining the water and wastewater system in good working condition, and properly maintaining all utility system assets. The Master Bond Ordinance requires that the Department properly maintain the utility system in order to provide the necessary assurances that the utility will be able to operate and generate the revenues needed to pay existing debt service obligations. The Department's budget is reviewed by the County's Office of Management and Budget, which has responsibility for the County's overall budget, to ensure that it is consistent with the County's policies and budgeting procedures.

The Water and Sewer Department altered the structure of its retail water rates effective in FY 2009. Under the revised rate structure, each retail water customer pays a volume charge on the basis of the amount of water used through each of the four tiers, with an increasing rate per 1,000 gallons as the customer moves from one tier to the next. The amount of water allowed in each of the first four tiers depends on the type and size of a customer's meter. Each customer also pays a base charge that is calculated on the basis of meter size. Each retail sewer customer pays a volume charge on the basis of the amount of water usage in each of three tiers, again taking into account water meter size, with an increasing rate per 1,000 gallons as the customer moves from one tier to the next. The revised structure

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considered the water usage characteristics and diversities of existing customers and the Department's ability to achieve water conservation. The revised rate structure provided greater equity among residential and non-residential retail customers. The Department is currently in the process of undertaking a review of the rate structures for water and wastewater. The study will provide recommendations on the adequacy of rates, customer classes, and the actual cost of providing service.

The retail customer revenues included in the FY 2017 Proposed Budget are based on an 8.0 percent increase in rates from those of FY 2016, applied to both water and wastewater customers. The Department's Proposed Budget also includes an increase in wholesale wastewater customer rates of 5.7 percent, and wholesale water customer rates will remain unchanged. In FY 2007, the County evaluates increasing rates in accordance with a Maintenance Index based on the United States Department of Labor, Bureau of Labor Statistics, CPI, All Urban Consumers, Water and Sewerage Maintenance, U.S. City Average. However, no retail customer rate increases were implemented for FY 2012 and 2013. For FY 2014, the Board of County Commissioners approved an 8.0 percent retail customer percent rate increase in order to meet the operational needs as well as requirements contained in Section 208 of the Department's Master Bond Ordinance. The Department implemented a 6.0 percent retail water and sewer rate increase in FY 2015 which is slightly above the 5.6 percent Maintenance Index for the period May 2014 through May 2015. In FY 2016, the Department recommended and the Board of County Commissioners approve a 6.0 percent retail customer rate increase. In FY 2017, the Department is recommending an 8.0 percent retail customer percent rate increase in order to meet operational needs and to continue to meet financial requirements in the Master Bond Ordinance for selling additional bonds.

For FY 2017, the Department is projecting no growth in the retail service area, retail water volume sales, and customers served from the projected levels of FY 2016. Over the last three years customer growth has been 1.0 percent or less and therefore, the forecast of customer growth and water usage for FY 2017 is reasonable.

As noted above, the Department's Proposed Budget includes no change in wholesale customer water rates, and a 5.7 percent increase in wholesale customer wastewater rates. The Department has adopted the practice, which is reflected in contracts with its wholesale customers, of adjusting wholesale water and wastewater customer rates based on any difference between actual, audited costs, and budgeted costs from the second previous fiscal year, FY 2015 in the case of FY 2017. The adjustment generally referred to as a "true-up," for FY 2015 resulted in a credit to wholesale water and money owed to the Department from wastewater customers.

The following are the principal assumptions applied in developing the projections of revenues and expenses and assessing the adequacy of the Department's rates and charges for FY 2017.

- The Department's contingent liabilities were reported in the Comprehensive Annual Financial Report for fiscal year ending September 30, 2015. The Department's contingent liabilities typically fall into the categories of legal, rebatable arbitrage earnings, settlement agreements, and implementation of new accounting standards. The Department's legal contingencies are not expected to have a significant effect on its financial position. The Department does not anticipate any rebatable arbitrage earnings obligation. All liabilities associated with consent agreements are reflected in the Department's capital improvements program through FY 2016.

## FISCAL YEAR 2017 ADEQUACY OF RATES AND CHARGES, DEPOSITS TO THE RENEWAL AND REPLACEMENT FUND, EXPENDITURE OF 2013A BOND PROCEEDS, AND 2015 BOND REFUNDING AND COMMERCIAL PAPER

- On May 21, 2013, the Board of County Commissioners adopted Resolution R-393-13 approving the execution of the Consent Decree (Case: No. 1:12-cv-24400-FAM) between Miami-Dade County, the United States of America, the State of Florida and the Florida Department of Environmental Protection (FDEP). This Consent Decree, upon entry, closes the Department's previous First Partial Consent Decree and the Second and Final Partial Consent Decree with the EPA. The Consent Decree focuses primarily on system improvements at the treatment plants, the collection system, and the continuation of the capacity maintenance program, including enforcement of the 10-hour criterion at pump stations and the pump station remote monitoring program (SCADA system). The Consent Decree identifies project costs of \$2.3 billion, which is reflected in the Department's capital improvement program as detailed in the analysis presented herein. As a part of the terms and conditions of the Consent Decree, the Department must submit monthly status reports detailing the status of specific activities necessary to meet the requirements of the Consent Decree. As of August 2016, the Department is planning to complete 14 Consent Decree related projects. The Department has completed 14 of the 82 Consent Decree related projects, 15 projects are in the contract procurement phase, 22 projects are currently under construction, and 5 design build projects are in progress. The budgeted Consent Decree requirements for FY 2017 have been included in the FY 2017 Proposed Budget.
- The Consolidated Public Water Supply Water Use Permit No. RE-ISSUE 13-00017-W from the South Florida Water Management District restricts the amount of water that the Department may withdraw from the existing Biscayne aquifer wellfields and requires the Department to invest in an alternative water supply and water reclamation facilities to offset future withdrawals from the Biscayne aquifer. The Proposed Budget takes into account the financial impacts of the Water Use Permit.
- The Administrative Reimbursement to the Miami-Dade County General Fund was calculated at 3.1 percent of Total Operating Revenues in FY 2016 and this total is forecasted to be 2.8 percent in FY 2017.
- Operating Revenues
  - As noted above, the FY 2017 budget includes an 8.0 percent increase in retail customer rates. Wholesale customers will continue to be charged based on the cost of providing services in accordance with the wholesale customer agreements. In FY 2017, after the completion of the Wholesale Rate Development process, the wholesale water customers' rate will remain the same and a rate increase of 5.73 percent from wastewater customers is required.
  - Retail customer revenues are budgeted at 98 percent of total expected retail customer revenues and wholesale customer revenues are budgeted at 95 percent of expected revenues, with other operating revenues included at 100 percent. Other Operating Revenues are projected to remain level in FY 2017. The Department expects to experience little change in the number of retail water and wastewater customers, and no change in the number of wholesale water and wastewater customers.
  - Operating Revenues from retail water customers will continue to include a surcharge of 25 percent to retail water users in the 4th tier of water consumption both to further encourage water conservation and to help recover some of the lost revenue experienced as a result of water restrictions.

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- The Rock Mining Mitigation Fee, established by the Legislature in FY 2006 to help offset the Department's expected higher water treatment costs due to rock mining activities, has been restricted for implementation of modifications at the water treatment facilities, or to build new facilities, in order to comply with the Surface Water Treatment Rule (SWTR) of the Safe Drinking Water Act (SDWA). In July 2012, the Department stopped receiving the rock mining fee. In July of 2015 the department resumed receiving The Rock Mining Mitigation Fee after a three year hiatus. The Rock Mining Fee will sunset on July 2018. The Rock Mining Mitigation Fee, less administrative costs, are being deposited into the Lake Belt Mitigation Trust Fund by the South Florida Water Management District until approximately \$20 million estimated to be needed for building a seepage barrier at the Northwest wellfield is collected.
- Operating Expenses
  - The Department's Operating Expenses in FY 2017 are budgeted to be 7.1 percent greater than the projected amount for FY 2016. The increase is attributable mainly to new operating expenses, increased contracted services, and salary-benefit costs related to an additional 198 positions, to improve key performance indicators identified in the consent decree. The increases in the cost to provide service along with the increase in operating and personnel costs contributed to the increase in the Department's Operating Expenses.
  - The Proposed Budget includes operating expenses necessary to maintain compliance with the Water Use Permit, the existing Consent Decree, and all other regulatory-driven programs.
- Non-Operating Revenues
  - Interest earned on the investment of cash balances, including interest earned on funds from one-time non-construction financial transactions, will be made available for debt service or other operating expenses, as appropriate.
  - The Department projected to realize approximately \$9.5 million from its interest rate swap agreement with the Bank of New York, which will be applied to payment of debt service.
  - Interest income, from sources other than the Construction Fund, will be made available for debt service, and was projected by the Department based on projected balances and prevailing interest rates.
  - Based on 100 percent of revenues, the Department will increase the balance of the General Reserve Fund at the end of FY 2017 to approximately \$58.0 million, while leaving the balance of the Rate Stabilization Reserve at its current level of \$30.5 million.

Table 2 shows Operating Revenues and Expenses, Adjusted Net Revenues, and Debt Service Coverage for both Senior and Subordinate Debt for FYs 2015 through 2017. The figures for FY 2015 are actual, audited results, the figures for FY 2016 are projections, and the figures for FY 2017 are based on the Department's Proposed Budget using 100 percent of revenues.

FISCAL YEAR 2017 ADEQUACY OF RATES AND CHARGES, DEPOSITS TO THE RENEWAL AND REPLACEMENT FUND, EXPENDITURE OF 2013A BOND PROCEEDS, AND 2015 BOND REFUNDING AND COMMERCIAL PAPER

Table 2. Miami-Dade Water and Sewer Department Revenues, Expenses, and Debt Service Coverage – Fiscal Years 2015 through 2017

Revenue/Expense Item/Factor	Fiscal Year			
	2015 Actual	2016 Projected	2017 Proposed Budget	2017 Proposed Budget – 100% of Revenues
<b>Operating Revenues and Expenses</b>				
<b>Operating Revenues</b>				
Retail Water	\$ 233,464,132	\$ 246,823,927	\$263,203,109	\$ 268,574,601
Wholesale Water	37,007,542	28,815,122	28,241,761	30,114,589
Other Water	14,966,407	14,502,605	14,575,117	14,575,117
Retail Wastewater	252,737,271	267,965,067	283,751,854	289,542,708
Wholesale Wastewater	61,802,296	80,583,717	80,166,237	84,105,532
Other Wastewater	13,338,439	13,338,439	13,405,131	13,405,131
<i>Subtotal Operating Revenue<sup>1</sup></i>	\$ 613,316,087	\$ 652,028,877	\$ 683,343,210	\$ 700,317,678
<b>Operating Expenses</b>				
Water System	157,526,397	176,864,600	183,086,800	183,086,800
Sewer System	211,381,085	224,647,400	246,741,200	246,741,200
<i>Subtotal Operating Expenses<sup>2</sup></i>	\$ 368,907,482	\$ 401,512,000	\$ 429,828,000	\$ 429,828,000
<b>Net Operating Revenues</b>	<b>\$ 244,408,605</b>	<b>\$ 250,516,877</b>	<b>\$ 253,515,210</b>	<b>\$ 270,489,678</b>
<b>Adjusted Net Operating Revenues</b>				
Plus interest income other than from Construction Fund	\$ 1,198,000	\$ 1,574,000	\$ 1,427,000	\$ 1,427,000
Plus transfers from (to) Rate Stabilization Fund	0	0	0	0
<b>Adjusted Net Operating Revenues<sup>3</sup></b>	<b>\$ 245,606,605</b>	<b>\$ 252,090,877</b>	<b>\$ 254,942,210</b>	<b>\$ 271,916,678</b>

FISCAL YEAR 2017 ADEQUACY OF RATES AND CHARGES, DEPOSITS TO THE RENEWAL AND REPLACEMENT FUND, EXPENDITURE OF 2013A BOND PROCEEDS, AND 2015 BOND REFUNDING AND COMMERCIAL PAPER

Revenue/Expense Item/Factor	Fiscal Year			
	2015 Actual	2016 Projected	2017 Proposed Budget	2017 Proposed Budget – 100% of Revenues
<b>Senior Debt Service Coverage<sup>4</sup></b>				
Adjusted Net Operating Revenues	\$ 245,606,605	\$ 252,090,877	\$ 254,942,210	\$ 271,916,678
Total Revenue Bond Debt Services	153,210,657	157,035,665	161,193,594	161,193,594
Senior Debt Services Coverage Ratio	1.60	1.61	1.58	1.69
Required Senior Debt Services Coverage Ratio	1.25	1.25	1.25	1.25
<b>Subordinate Debt Service Coverage<sup>5</sup></b>				
Adjusted Net Operating Revenue	\$ 245,606,605	\$ 252,090,877	\$ 254,942,210	\$ 271,916,678
Less Maximum Principal and Interest Requirement	161,193,594	161,193,594	165,669,413	165,669,413
Adjusted Net Operating Revenue Less Maximum Principal and Interest	84,413,011	90,846,283	89,347,797	106,322,266
Subordinate Debt Service – State Revolving Fund Loans, including reserve requirements	18,080,673	16,819,399	15,974,644	15,974,644
Subordinate Debt Services Coverage Ratio	4.67	5.40	5.59	6.65
Required Subordinate Debt Services Coverage Ratio	1.00	1.00	1.00	1.00

FISCAL YEAR 2017 ADEQUACY OF RATES AND CHARGES, DEPOSITS TO THE RENEWAL AND REPLACEMENT FUND, EXPENDITURE OF 2013A BOND PROCEEDS, AND 2015 BOND REFUNDING AND COMMERCIAL PAPER

Revenue/Expense Item/Factor	Fiscal Year			
	2015 Actual	2016 Projected	2017 Proposed Budget	2017 Proposed Budget – 100% of Revenues
<b>State Revolving Fund Loan Debt Services Coverage<sup>6</sup></b>				
Adjusted Net Operating Revenue	\$ 245,606,605	\$ 252,090,877	\$ 254,942,210	\$ 271,916,678
Less 125% of Revenue Bond Debt Service	(191,513,321)	(196,294,582)	(201,491,992)	(201,491,992)
Net Operating Revenue Less 125% Revenue Bond Debt Service	54,093,284	55,796,295	53,450,218	70,424,686
Debt Service on Current State Revolving Fund Loan	18,080,673	16,819,399	15,974,644	15,974,644
State of Florida Loan Debt Service Coverage Ratio	2.99	3.32	3.35	4.41
Required State Revolving Fund Loan Debt Service Coverage Ratio	1.15	1.15	1.15	1.15

1 Total Operating Revenue figure includes all revenues applicable in the calculation of debt service coverage.

2 Total Operating Expenses shown are prior to depreciation.

3 Total Adjusted Net Operating Revenues is used in calculation of the debt service coverage ratio, in accordance with the Master Bond Ordinance.

4 The senior debt service coverage requirement is Adjusted Net Operating Revenue and cash basis debt service. Coverage must be at least 125 percent of debt service.

5 The subordinate debt service coverage requirement is Adjusted Net Operating Revenue less maximum principal and interest requirement on all bonds, and must be at least 100 percent of debt service and reserve requirements.

6 The State Revolving Fund debt service coverage requirement is that Adjusted Net Operating Revenue less 125 percent of senior debt service and must be at least 115 percent of State Revolving Fund debt service.

7 Figures are based on the WASD Five-Year Financial Plan as of August 30, 2016.

Note: Entries are rounded, and totals and subtotals use formulas that may yield insignificant differences. Data through FY2015 is from Comprehensive Annual Financial Reports.

As noted above, the FY 2017 Proposed Budget is based on realizing only 98 percent of retail and 95 percent of wholesale customer revenues, but the Master Bond Ordinance does not require the Department to budget less than 100 percent of the projected revenues. Table 2 illustrates the debt service coverage results for FY 2017 based on the Department's Proposed Budget figures adjusted to

## FISCAL YEAR 2017 ADEQUACY OF RATES AND CHARGES, DEPOSITS TO THE RENEWAL AND REPLACEMENT FUND, EXPENDITURE OF 2013A BOND PROCEEDS, AND 2015 BOND REFUNDING AND COMMERCIAL PAPER

100 percent of the projected Operating Revenues. Historically, the Department has realized close to 100 percent of the estimated revenue amount.

Based on the Proposed Budget for FY 2017, the Department's Net Operating Revenues are expected to be sufficient to meet the required debt service coverage ratio on Senior Debt of 125 percent, using either budgeted or 100 percent of estimated Operating Revenues. For purposes of projecting cash flow requirements for the issuance of the Series 2013 Bonds, the Department applied a minimum target debt service coverage ratio of 1.35, which is also met based on the Proposed Budget. In addition, the debt service coverage ratios outlined in Table 2 includes the debt service payments associated with Series 2015 Refunding Bonds.

The debt service coverage ratio on Subordinate Debt is projected to exceed the required ratio of 100 percent. The debt service coverage ratio on debt incurred through the State of Florida Revolving Fund is also projected to be greater than the required level of 115 percent in FY 2017.

The projected revenues and associated rates and charges budgeted for FY 2017 will be adequate to allow the Department to meet the debt service requirements of the Rate Covenant, barring any major unforeseen events that may adversely impact revenues or expenses.

Table 3 presents projected end-of-year fund balances for the Rate Stabilization fund, General Reserve and the Two-Month O&M Reserve. The Two-Month O&M Reserve is required by the Master Bond Ordinance. The total FY 2017 fund balances for the Rate Stabilization Fund and General Reserve Fund are estimated to be 37 percent, or 136 days of cash on hand of operating expenses with projected revenues at 100 percent and 33 percent, or 122 days of cash on hand based on the Department's budgeted revenues. It is important to note that the lower the level of reserves, the greater the risk associated with the Department's ability to respond to unexpected events, ranging from plant failures, breaks in water and wastewater transmission lines, and other unanticipated circumstances such as severe weather conditions.

FISCAL YEAR 2017 ADEQUACY OF RATES AND CHARGES, DEPOSITS TO THE RENEWAL AND REPLACEMENT FUND, EXPENDITURE OF 2013A BOND PROCEEDS, AND 2015 BOND REFUNDING AND COMMERCIAL PAPER

**Table 3. End of Year Reserve Fund Balance and Operating Expenses for Fiscal Years 2015 through 2017**

Item	2015 Actual	2016 Projected	2017 Proposed Budget	2017 Proposed Budget – 100% of Operating Revenues
Rate Stabilization	\$ 30,534,000	\$ 30,534,000	\$ 30,534,000	\$ 30,534,000
General Reserve	\$ 39,065,000	\$39,842,000	\$41,017,000	\$57,992,000
Two-Month O&M Reserve	\$ 63,834,138	\$ 68,550,647	\$ 71,638,000	\$ 71,638,000
Total Reserves	\$ 133,433,138	\$ 138,175,647	\$ 142,438,000	\$160,164,000
Operating Expenses	\$ 368,907,482	\$ 401,512,000	\$ 429,828,000	\$ 429,828,000
Days of Cash On Hand	132	126	122	136
Percent Total Reserves of Operating Expenses	36%	34%	33%	37%

Sources: Data for FY 2015 from Water and Sewer Department Comprehensive Annual Financial Reports and projections based on supporting financial data as of August 30, 2016.

## 5 RECOMMENDED DEPOSIT TO THE RENEWAL AND REPLACEMENT FUND

Section 607 of the Master Ordinance requires that the Bond Consultant recommend the amount to be deposited to the credit of the R&R Fund. The R&R fund is designed to pay for renewal and replacement capital projects, and typically is funded through operating revenues. The FY 2017 Proposed Budget reflects that the Department will deposit \$80 million into the R&R Fund. Based on the review of the current allocation of expenses from the proposed FY 2017 Multi-Year Capital Plan (MYCP), approximately \$107.1 million is proposed to be funded from the R&R Fund for renewal and replacement work. Tables A-1 and A-2 in Appendix A present the water and wastewater multi-year capital plans, respectively.

Tables A-3 and A-4 in Appendix A summarize the proposed FY 2017 water and wastewater R&R funded projects. The proposed budgets represent general funding “blanket” appropriations to be used for funding R&R subprojects within the projects identified.

The following observations were made based on our review of the proposed MYCP, historical data and discussions with the WASD staff:

- The Department is using a modified approach to funding R&R projects. Given the finite limit of funds available to fund renewal and replacement work from the R&R Fund, and in an effort to ensure that critical renewal and replacement work in the system is performed, the Department has opted to fund renewal and/or replacement projects that result in a significant increase in the useful life of the asset and are economically feasible through bonds and other financing mechanisms, as appropriate. This approach permits the Department to fund large replacement projects that require multi-year funding to be implemented.
- Based on the review of the proposed \$107.1 million in expenditures, it is estimated that approximately \$31.5 million is allocated to be spent on non-infrastructure related projects, with approximately \$75.6 million being allocated for infrastructure related R&R projects. The definition of non-infrastructure and infrastructure related expenses is as follows:
  - Non-infrastructure - purchases of vehicles and non-water production or non-wastewater treatment equipment.
  - Infrastructure – Renewal, rehabilitation and /or replacement of existing infrastructure related to the production of water or treatment of wastewater, including collection/transmission systems.

Table 4 shows the projected allocation of the budgeted \$107.1 million to be spent from the R&R Fund for water and wastewater projects by two types of R&R categories: Infrastructure and Non-Infrastructure.

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**Table 4. Summary of the Budgeted FY 2017 R&R Fund Expenditures**

	R&R Categories		Total
	Infrastructure	Non-Infrastructure	
Water	\$ 31,934,456	\$ 12,996,077	\$ 44,930,533
Wastewater	43,647,939	18,492,794	62,140,733
<b>Total</b>	<b>\$ 75,582,395</b>	<b>\$ 31,488,871</b>	<b>\$ 107,071,266</b>

In conjunction with the review of the FY 2017 MYCP, a review of the of the proposed \$107.1 million in expenditures from the R&R fund reflects the following;

1. Based on the projected deposit and expenditure for FY 2017 of \$80.0 million and \$107.1 million respectively, the forecasted beginning R&R fund balance of \$53.0 million, and assuming that the estimated expenditures and deposits both occur in FY 2017, the R&R fund balance at the end of FY 2017 is forecasted to be \$25.9 million. The Department must maintain R&R fund balances that are consistent with historical levels at a minimum. Table 5 provides a summary of the Department's historical and budgeted R&R end of year fund balances.

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Table 5. R&R Fund Balances for Fiscal Years 2002 through 2017

Fiscal Year	Total End of FY Fund Balance
2002	\$ 60,356,004
2003	72,852,296
2004	66,253,012
2005	41,277,944
2006 <sup>1</sup>	179,782,309
2007 <sup>1</sup>	131,619,693
2008	87,224,312
2009	65,734,911
2010	61,597,428
2011	63,744,401
2012	61,902,720
2013	95,710,899
2014	89,393,719
2015	71,512,935
2016 <sup>2</sup>	53,021,073
2017 <sup>3</sup>	25,949,807

1 The R&R fund balances for these years are the result of certain internal transfers.

2 Estimated as of August 30, 2016

3 Based on FY 2017 Budget

- Table 6 summarizes the Department's historical annual R&R expenditures, net capital assets, and annual depreciation expense. The budgeted FY 2017 R&R expenditure of \$107.1 million represents approximately 2.9 percent of the FY 2015 (last audited financial statements) reported net capital assets of the Department. The budgeted FY 2017 R&R expenditure represents a larger reinvestment in system assets as compared to the historical years presented in Table 6, and this increase is specifically targeted toward infrastructure related assets

FISCAL YEAR 2017 ADEQUACY OF RATES AND CHARGES, DEPOSITS TO THE RENEWAL AND REPLACEMENT FUND, EXPENDITURE OF 2013A BOND PROCEEDS, AND 2015 BOND REFUNDING AND COMMERCIAL PAPER

Table 6. Summary of Annual Depreciation and Renewal & Replacement Investment

Description	Reported <sup>1</sup> (In thousands)					Estimated	Budget
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016 <sup>4</sup>	FY 2017 <sup>4</sup>
Total Net Capital Assets <sup>1, 2</sup>	3,343,125	3,473,954	3,492,280	3,523,709	3,698,846	NA	NA
Annual Depreciation Expense <sup>1,2</sup>	159,158	163,315	177,570	183,557	188,909	NA	NA
Annual R&R Expenditure <sup>1,3</sup>	61,043	56,342	25,688	72,615	91,231	98,302	107,071
R&R % of Net Capital Assets	1.8%	1.6%	0.7%	2.1%	2.5%	2.7% <sup>4</sup>	2.9% <sup>4</sup>

1 Reported in \$1,000.

2 Total Net Capital Assets and Annual Depreciation Expense obtained from annual financial statements.

3 Data provided by WASD August 30, 2016.

4 R&R percent of Net Capital Assets based on FY 2015 Net Capital Assets.

- The Department's proposed deposit of \$80.0 million to the R&R fund in FY 2017, along with approximately \$53.0 million in R&R funds that is estimated at the end of FY 2016, is adequate to fund the \$107.1 million in capital expenditures that is forecasted for FY 2017. Funding and completion of R&R expenditures has provided a challenge to the Department. However, the FY 2017 Budget includes future R&R spending and funding of \$107.1 million in FY 2017 and \$80.0 million annually for FY 2018 through 2022. These budget levels represent an increase in R&R spending from historic levels. In addition, significant deposits into the R&R fund account must be made to achieve the forecasted spending and maintain the minimum fund balances through FY 2022.

## 6 SERIES 2013A BOND PROCEEDS

In August 2013, the Department issued the Series 2013A Water and Sewer System Revenue Bonds for a principal amount of \$340,265,000. The bonds were issued in compliance with the Master Bond Ordinance, Ordinance No. 09-67 and Resolution No. R-417-13. The use of proceeds from the sale of the 2013A series bonds were applied as follows:

- Deposits to the Debt Service Reserve Account
- Deposits to the Series 2013A Cost of issuance Account
- Pay capitalized interest on the Series 2013A bonds
- Balance to be deposited in the "Series 2013A Construction Account"

## 7 SERIES 2015 REVENUE REFUNDING BOND PROCEEDS

In June 2015, the Department issued the Series 2015 Water and Sewer System Revenue Bonds for a principal amount of \$481.2 million. The bonds were issued in compliance with the Master Bond Ordinance, Ordinance No. 09-67 and Resolution No. R-417-13. The use of proceeds from the sale of the 2015 series bonds were applied as follows:

- Refund the principal amount of the Series 2007 Bonds maturing on and after October 1, 2018
- Refund the principal amount of the Series 2008C Bonds maturing on and after October 1, 2019
- Pay the issuance cost related to the Series 2015 Bonds

At the time of the issuance of the bonds, the Department refinanced \$481.2 million in outstanding principal and refinanced \$41.3 million and \$29.9 million Series 2007 and Series 2008C bonds respectively. The refinancing will reduce debt service payments by \$2 million in FY 2017.

## 8 COMMERCIAL PAPER

In May 2016, the Department instituted a commercial paper program with a maximum outstanding principal amount of \$400 million. The program was authorized in compliance with the Master Bond Ordinance, Ordinance No. 09-67, and Resolution No. R-347-16, which allow the Department to issue commercial paper.

The commercial paper was issued in two main series: Series A and Series B. Each series is further divided into taxable and tax-exempt components. The commercial paper program is being undertaken with Barclays Capital, Inc. (Series A), and the Sumitomo Mitsui Banking Corporation (Series B), each of whom have provided letters of credits supporting \$200 million in principal payments, and \$18 million in interest payments.

Proceeds from the commercial paper program will be used to finance short term capital requirements for the Construction Fund, in accordance with Resolution No. R-347-16. All commercial paper will have maturity dates no later than 270 days after the date of issuance, two days before the expiration date of any letter of credit, or May 17, 2021, whichever is earliest. Revenue bonds will be issued alongside the commercial paper notes, in the amount no less than the current outstanding aggregate principal commercial paper debt.

## 9 CONCLUSIONS

We have concluded that the financial information and rates and charges in the Department's FY 2017 Proposed Budget, along with their underlying assumptions, provide a reasonable basis for projecting debt service coverage and concluding that the Department can reasonably be expected to comply with the debt service coverage requirements stated in the Master Bond Ordinance. This conclusion is based on the Board of County Commissioners approving the 8.0 percent rate increase included in the proposed budget for FY 2017.

The \$80.0 million deposit to the R&R fund, together with available R&R reserves, is adequate to meet the Department's budgeted R&R expenditures being funded from the R&R fund in FY 2017. The R&R fund balance at the end of FY 2017 is budgeted to be \$25.9 million. As a standard practice, the Department must maintain the minimum R&R fund balance on an annual basis.

The FY 2017 budget includes approximately \$507.1 million in renewal and replacement fund spending through FY 2022. Given the estimated costs of deteriorated and vulnerable assets within the Department's system, as well as the requirements of the Consent Decree, we recommend the Department achieves at least the level of R&R spending projected in the FY 2017 budget.

It should be noted that other R&R type work is being funded through bonds and other funding mechanisms to ensure that critical R&R needs in the system are being addressed. Funding R&R through long-term debt is a practice that should be avoided in cases where the useful life of the R&R projects is less than the period of financing.

In conducting our analyses and in forming the conclusions presented in this report, we have made certain assumptions with respect to conditions, events, and circumstances that may occur in the future. The methodology utilized in performing the analyses follows generally-accepted practices for such projections. While we believe the assumptions are reasonable and appropriate, and the projection methodology valid, actual results may differ materially from those projected, as influenced by the conditions, events, and circumstances that actually occur, which are unknown at this time.

# APPENDIX A

Miami-Dade Water and Sewer Department Multi-Year Capital Plan



## APPENDIX A

Table A-1 Miami-Dade Water and Sewer Department Multi-Year Capital Plan - 2017 to 2022 Water Projects <sup>1</sup>

Project Number	Project Description	2017	2018	2019	2020	2021	2022	Future Years	Total
1050	Water Treatment Plant - Hialeah / Preston Improvements	\$10,800,960	\$2,990,949	\$4,373,370	\$5,171,567	\$744,360	\$12,400,829	\$30,282,747	\$66,764,782
1051	Water Treatment Plant - Alexander Orr, Jr. Expansion	17,605,770	17,437,627.00	40,306,076.00	31,213,617	20,495,555	12,953,505	4,796,495	144,808,645
1053	North Miami-Dade Water Transmission Main Improvements	1,723,550	1,706,511	9,839,788	47,697	0	0	0	13,317,546
1054	Central Miami-Dade Water Transmission Main Improvements	698,349	3,186,303	2,735,357	20,355,888	19,686,157	5,582,275	14,514,960	66,759,289
1055	South Miami-Dade Water Transmission Main Improvements	258,497	751,496	4,781,562	851,346	2,492,133	8,738,424	977,376	18,850,834
1056	Water Main Extension	1,500,000	1,000,000	1,000,000	1,000,000	2,000,000	2,000,000	0	8,500,000
1059	Water General Maintenance and Office Facilities	8,519,831	11,759,386	11,191,959	5,637,566	18,039,931	349,582	0	55,498,255
1060	Water Distribution System Extension Enhancements	47,951,392	70,429,402	26,366,663	12,965,814	13,500,000	16,000,000	35,580,227	222,793,498
1063	Water System Fire Hydrant Installation	3,500,000	3,500,000	3,500,000	3,500,000	3,500,000	3,500,000	4,224,137	25,224,137
1064	Water Equipment and Vehicles	12,996,077	5,950,000	7,050,000	8,562,863	13,042,361	17,912,833	228,283,920	293,798,054
1065	General Obligation Bond (GOB)	3,639,001	3,460,893	2,811,476	2,980,556	647,339	160,000	602,258	14,301,523
1066	Water Treatment Plants Replacement and Renovations	7,682,500	6,545,104	8,015,978	2,500,000	2,500,000	2,500,000	2,500,000	32,243,582
1067	Water System Maintenance and Upgrades	17,770,500	15,000,000	15,000,000	15,000,000	15,000,000	15,000,000	15,000,000	107,770,500
1070	Automation of Water Treatment Plants	330,340	0	0	0	0	0	0	330,340
1072	Water Treatment Plants Miscellaneous Upgrades	2,500,000	8,032,179	7,366,591	126,627	0	0	0	18,025,397
1075	Safe Drinking Water Act Modifications - SWT Rule and D-DBP	3,149,524	7,930,213	17,364,289	33,066,085	76,454,440	61,271,024	303,017,628	502,253,203
1077	South Miami Heights Water Treatment Plant and Wellfield	20,248,718	5,926,141	6,032,757	11,211,427	21,370,990	54,542,689	144,455,504	263,788,226
1078	Water Telemetry System Enhancements	680,998	300,000	300,000	300,000	300,000	300,000	300,000	2,480,998
1080	Water Treatment Plant - Floridian Reverse Osmosis	4,000,000	0	0	0	0	0	0	4,000,000

(1) Information obtained from the Proposed FY2016-2017 Multi-Year Capital Plan provided August 30, 2016.

## APPENDIX A

Table A-1 (Continued) Miami-Dade Water and Sewer Department Multi-Year Capital Plan - 2017 to 2022 Water Projects <sup>1</sup>

Project Number	Project Description	2017	2018	2019	2020	2021	2022	Future Years	Total
1081	Installation of 12-inch DIWM on East Drive from NW 36 St. to La Baron Dr.	4,123,304	490,532	0	0	0	0	0	4,613,836
1082	Water - Pipes and Infrastructure Projects	9,751,856	14,047,250	19,156,877	8,000,000	8,000,000	8,000,000	8,000,000	74,955,983
1084	Small Diameter Water Main Replacement Program	14,013,142	29,925,059	32,094,810	22,390,975	12,729,566	11,999,906	321,659,565	444,813,023
<b>Total</b>		<b>\$193,444,309</b>	<b>\$210,369,045</b>	<b>\$219,287,553</b>	<b>\$184,882,028</b>	<b>\$230,502,832</b>	<b>\$233,211,067</b>	<b>\$1,114,194,817</b>	<b>\$2,385,891,651</b>

(1) Information obtained from the Proposed FY2016-2017 Multi-Year Capital Plan provided August 30, 2016.

## APPENDIX A

Table A-2 Miami-Dade Water and Sewer Department Multi-Year Capital Plan - 2017 to 2022 Wastewater Projects <sup>1</sup>

Project Number	Project Description	2017	2018	2019	2020	2021	2022	Future Years	Total
1002	North District Upgrades - Wastewater Treatment Plant	\$3,464,603	\$8,868,138	\$6,053,486	\$4,199,601	\$4,078,253	\$3,180,000	\$133,044,942	\$162,889,023
1003	Central District Upgrades - Wastewater Treatment Plant	5,346,969	8,521,967	5,713,556.00	3,616,832	1,900,042	108,126	8,500,000	33,707,492
1006	South District Wastewater Treatment plant Expansion - Phase 3	7,053,449	7,723,931	15,622,792	15,167,589	11,392,503	11,500,000	73,000,000	141,460,264
1007	South District Upgrades - Wastewater Treatment Plant	1,000,000	2,000,000	4,000,000	3,000,000	1,000,000	0	182,500,000	193,500,000
1008	North Miami-Dade Wastewater Transmission Mains and Pump Station Improvements	7,922,879	14,126,038	5,710,564	27,058,907	33,305,772	45,822,956	982,535,833	1,116,482,949
1009	Central Miami-Dade Wastewater Transmission Mains and Pump Station Improvements	10,951,725	20,206,507	20,550,368	22,927,228	25,117,973	20,429,977	90,483,715	210,667,493
1010	South District Wastewater Transmission Mains and Pump Station Improvements	8,212,433	18,268,977	23,917,213	28,323,816	23,161,919	17,910,848	185,324,057	305,119,263
1011	Gravity Sewer Renovations	1,375,895	1,258,452	1,050,000	650,000	350,000	224,112	0	4,908,459
1012	Sanitary Sewer System Improvements	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	32,591,509	0	45,091,509
1013	Wastewater General Maintenance and Office Facilities	2,926,808	7,450,969	12,265,000	13,207,754	12,653,832	8,184,465	103,031,535	159,720,363
1014	Corrosion Control Facilities Improvements	100,000	89,523	865,468	352,117	4,881,856	115,920	0	6,404,884
1015	Pump Station Improvement Program	32,414,868	34,129,616	35,133,228	12,660,512	4,535,637	4,535,637	166,312,017	289,721,515
1018	Peak Flow Management Studies	20,225,712	14,103,608	9,207,951	29,274,036	16,013,775	10,219,543	432,468,920	531,513,545
1019	Sanitary Sewer System Extension	10,564,342	3,613,135	5,613,135	4,538,444	1,500,000	1,500,000	191,633,491	218,962,547
1021	Pump Station Generators and Miscellaneous Upgrades	3,674,994	7,194,119	16,023,901	13,805,765	49,735,059	11,879,682	351,200	102,664,720
1023	Wastewater Telemetry System	1,859,705	500,000	500,000	500,000	500,000	500,000	500,000	4,859,705
1024	Wastewater System Maintenance and Upgrades	18,428,441	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	138,428,441
1025	Lift Station Upgrades and Structural Maintenance Improvements	2,560,000	5,057,529	6,500,000	6,049,128	6,500,000	6,171,626	31,000,000	63,838,283
1027	Wastewater Equipment and Vehicles	18,492,794	11,500,000	11,500,000	11,500,000	11,500,000	11,500,000	11,500,000	87,492,794
1029	Wastewater Treatment Plants Replacement and Renovation	13,582,833	7,608,333	10,526,484	7,000,000	7,000,000	7,000,000	58,650,000	111,367,650
1032	Wastewater Treatment Plants Miscellaneous Upgrades	619,341	688,743	288,424	3,793,312	160,180	906,703	6,593,297	13,050,000

(1) Information obtained from the Proposed FY2016-2017 Multi-Year Capital Plan provided August 30, 2016.

## APPENDIX A

Table A-2 (Continued) Miami-Dade Water and Sewer Department Multi-Year Capital Plan - 2017 to 2022 Wastewater Projects <sup>1</sup>

Project Number	Project Description	2017	2018	2019	2020	2021	2022	Future Years	Total
1039	MIASP	147,943	311,695	0	0	0	0	0	459,638
1040	Outfall Legislation Summary Description	38,816,968	44,788,648	52,571,723	63,205,911	72,847,615	107,726,266	3,255,334,412	3,635,291,543
1041	General Obligation Bond (GOB)	2,572,038	1,993,596	1,378,346	1,513,714	437,339	40,000	602,258	8,537,291
1042	Wastewater - Pipes and Infrastructure	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	21,000,000
1044	Wastewater Treatment Plants Consent Decree Projects	113,064,751	111,162,220	96,624,118	93,373,563	91,217,606	101,119,267	939,289,093	1,545,850,618
1045	Wastewater Collection and Transmission Lines Consent Decree Projects	53,271,379	54,199,470	42,277,157	20,770,247	15,023,363	15,273,363	136,984,124	337,799,103
1046	Sewer Pump Station Systems Consent Decree Projects	23,584,232	38,890,477	23,678,351	15,000,000	7,183,541	1,000,000	0	109,336,601
1047	Wastewater Commercial Corridor Economic Development	4,196,270	14,965,620	21,617,338	17,193,494	23,172,187	31,000,000	162,386,219	274,531,128
<b>Total</b>		<b>\$411,931,372</b>	<b>\$464,721,311</b>	<b>\$454,688,603</b>	<b>\$444,181,970</b>	<b>\$450,668,452</b>	<b>\$473,440,000</b>	<b>\$7,175,025,113</b>	<b>\$9,874,656,821</b>

(1) Information obtained from the Proposed FY2016-2017 Multi-Year Capital Plan provided August 30, 2016.

## APPENDIX A

Table A-3 Miami-Dade Water and Sewer Department Multi-Year Capital Plan - 2017 to 2022 Water R&R Funded Projects <sup>1</sup>

Project Number	Project Description	Sub-Project Description	2017	2018	2019	2020	2021	2022	Future Years	Total
1060	Water Distribution System Extension Enhancements	Water distribution system extension	\$819,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$3,819,000
1060	Water Distribution System Extension Enhancements	Water distribution system extension for JPA's	2,481,458	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	20,481,458
1064	Water Equipment and Vehicles	Miscellaneous tools and equipment	3,815,150	1,700,000	1,700,000	1,700,000	1,700,000	1,700,000	1,700,000	14,015,150
1064	Water Equipment and Vehicles	Heavy construction equipment	5,842,032	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	14,842,032
1064	Water Equipment and Vehicles	Vehicles/transportation equipment	3,218,662	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	15,218,662
1064	Water Equipment and Vehicles	Automated meter reading (AMR)	120,233	0	0	0	0	0	0	120,233
1066	Water Treatment Plants Replacement and Renovations	Water plants rehabilitation	1,827,500	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	10,827,500
1066	Water Treatment Plants Replacement and Renovations	Security projects	355,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	6,355,000
1067	Water System Maintenance Upgrades	Water system upgrades	17,770,500	15,000,000	15,000,000	15,000,000	15,000,000	15,000,000	15,000,000	107,770,500
1078	Water Telemetry System Enhancements	Telemetry system - water	680,998	300,000	300,000	300,000	300,000	300,000	300,000	2,480,998
1082	Water - Pipes and infrastructure projects	Water - Pipes and infrastructure projects	8,000,000	8,000,000	8,000,000	8,000,000	8,000,000	8,000,000	8,000,000	56,000,000
<b>Total</b>			<b>\$44,930,533</b>	<b>\$34,500,000</b>	<b>\$34,500,000</b>	<b>\$34,500,000</b>	<b>\$34,500,000</b>	<b>\$34,500,000</b>	<b>\$34,500,000</b>	<b>\$251,930,533</b>

(1) Information obtained from the Proposed FY2016-2017 Multi-Year Capital Plan provided August 30, 2016.

## APPENDIX A

Table A-4 Miami-Dade Water and Sewer Department Multi-Year Capital Plan - 2017 to 2022 Wastewater R&R Funded Projects <sup>1</sup>

Project Number	Project Description	Sub-Project Description	2017	2018	2019	2020	2021	2022	Future Years	Total
1019	Sanitary Sewer System Extension	Sanitary sewer system extension	\$7,704,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$13,704,000
1019	Sanitary Sewer System Extension	Sanitary sewer system extension for JPA's	200,000	500,000	500,000	500,000	500,000	500,000	500,000	3,200,000
1023	Wastewater Telemetry System	Telemetry system - wastewater	1,280,998	500,000	500,000	500,000	500,000	500,000	500,000	4,280,998
1024	Wastewater System Maintenance and Upgrades	Wastewater system upgrades	18,428,441	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	138,428,441
1025	Lift station Upgrades and Structural Maintenance Improvements	Lift station structural maintenance & upgrades	60,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	12,060,000
1027	Wastewater Equipment and Vehicles	Miscellaneous tools and equipment	6,057,154	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	21,057,154
1027	Wastewater Equipment and Vehicles	Vehicles/transportation equipment	6,495,530	6,500,000	6,500,000	6,500,000	6,500,000	6,500,000	6,500,000	45,495,530
1027	Wastewater Equipment and Vehicles	Heavy construction equipment	5,940,110	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	20,940,110
1029	Wastewater Treatment Plants Replacement and Renovation	Wastewater treatment plants rehabilitation	11,796,500	5,600,000	5,600,000	5,600,000	5,600,000	5,600,000	5,600,000	45,396,500
1029	Wastewater Treatment Plants Replacement and Renovation	Security projects	1,178,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	9,578,000
1042	Wastewater - Pipes and Infrastructure	Wastewater - Pipes and infrastructure projects	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	21,000,000
<b>Total</b>			<b>\$62,140,733</b>	<b>\$45,500,000</b>	<b>\$45,500,000</b>	<b>\$45,500,000</b>	<b>\$45,500,000</b>	<b>\$45,500,000</b>	<b>\$45,500,000</b>	<b>\$335,140,733</b>

(1) Information obtained from the Proposed FY2016-2017 Multi-Year Capital Plan provided August 30, 2016.

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